IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

WANG et al.

Appl. No.: To Be Assigned

Filed: Herewith (March 31, 2004)

For: Hardware-Efficient

Implementation of Dynamic Element Matching in Sigma-Delta

DAC's

Confirmation No.: To Be Assigned

Art Unit: To Be Assigned

Examiner: To Be Assigned

Atty. Docket: 1875.3750001/RES/GSB

Information Disclosure Statement

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may

not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- Z. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final

Rejection, or Notice of Allowance, or an action that otherwise closes prosecution

	in the	application.
	a.	Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of
		information contained in this Information Disclosure Statement was first
		cited in any communication from a foreign patent office in a counterpart
		foreign application not more than three months prior to the filing of this
		Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
	□ b.	Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of
		information in this Information Disclosure Statement was cited in a
		communication from a foreign patent office in a counterpart foreign
		application and, to my knowledge after making reasonable inquiry, was
		known to any individual designated in 37 C.F.R. § 1.56(c) more than
		three months prior to the filing of this Information Disclosure Statement.
		37 C.F.R. § 1.97(e)(2).
	□ c.	Attached is our PTO-2038 Credit Card Payment Form in the amount of
		\$ in payment of the fee under 37 C.F.R. § 1.17(p).
4.	Filing	under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being
	filed m	nore than three months after the U.S. filing date and after the mailing date
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	Enclos	ed find our PTO-2038 Credit Card Payment Form in the amount of
	\$	in payment of the fee under 37 C.F.R. § 1.17(p); in addition:

- a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
- b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.
- 6. A concise explanation of the relevance of the non-English language document(s) appears below:
- 7. Copies of the documents are submitted herewith.
- 8. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. 10/354,159, filed

January 30, 2003, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

George S. Bardmesser Attorney for Applicants Registration No. 44,020

Date: ___March 31, 2004

1100 New York Avenue, N.W. Washington, D.C. 20005-3934 (202) 371-2600

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	AB1		5,404,142	04/1995	Adams et al.	341	144			
	AC1	US-	6,124,813	09/2000	Robertson et al.	341	143			
_	AD1	US-	6,570,521	05/2003	Schofield, William G. J.	341	144			
	AE1	US-	6,577,261	06/2003	Brooks et al.	341	144			
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Annovazzi, M. et al., "A Low-Power 98-dB Multibit Audio DAC in a Standard CMOS Technology," IEEE Journal of Solid-State Circuits 37:7:825-834 (Jul								.3-V 0.35-µm 2002)		
	АТ	1	Baird, R. a	and Fiez, T., "I (1995)	Improved ΔΣ DAC Linearity	Using Dat	ta Weighted Ave	raging," <i>IEEE</i> ,		
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FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT

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	AR 2 Chen, F. and Leung, B., "Some Observations on Tone Behavior in Data Weighted Averaging," Proceedings of the IEEE 1998 International Symposium on Circuits and System, I-500 through (May 31 - June 3, 1998) Chen, K. and Kuo, T., "An Improved Technique for Reducing Baseband Tones in Sigma-Delta Modulators Employing Data Weighted Averaging Algorithm Without Adding Dither," IEEE Trans on Circuits and Systems- II: Analog and Digital Signal Processing 46:1:63-68 (January 1999)								
	Fishov, A. et al., "Segmented Mismatch-Shaping D/A Conversion," <i>IEEE</i> , pp. IV-679 through IV-(2002)							rough IV-682	
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

EXAMINER INITIAL A.		DOCUMEN NUMBER	RE STATEMENT	ATTY. DOCKET N 1875.3750001/RE FIRST NAMED INVE Minsheng WANG FILING DATE Herewith (March 31,	S/GSB ENTOR 2004)	APPLICATION NO. To Be Assigned ART UNIT To Be Assigned	
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A	AS	3 Galto	on, I., "Spectral Sh uits and System-II:	aping of Circuit Errors in Di Analog and Digital Signal I	igital-to-Analog Con Processing 44:10:80	verters," <i>IEEE Tr</i> e 08-817 (October 1	ansactions on . 997)
A	ΑT	3 Grilo Sing	, J. <i>et al.</i> , "A 12-m ^l le-Chip Bluetooth	W ADC Delta-Sigma Modul Fransceiver," IEEE Journal	lator With 80dB of E of Solid-State Circu	Oynamic Range In hits 37:3:271-278	tegrated in a (March 2002)
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	AR	4	Synthesis,	. and Galton, I., " " <i>IEEE Transacti</i> 7 (January 1998)	A Low-Complexity Dynamic ons on Circuits and Systems	: Element Mat s- II: Analog a	ching DAC for Dire and Digital Signal I	ect Digital Processing,			
	AS	4	Kwan, T. et al., "A Stereo Multibit ΣΔ DAC with Asynchronous Master-Clock Interface," <i>IEEE Journa Solid-State Circuits</i> 31:12:1881-1887 (December 1996								
	АТ	4	Norsworthy, S.R. et al., eds., "Practical Measures for Preventing Idle Tones" in Delta-Sigma Data Converters: Theory, Design and Simulation, IEEE Press, pp. 185-186 (1997)								
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	AR	Radke, R. et al., "A Spurious-Free Delta-Sigma DAC Using Rotated Data Weighted Avera Proceedings of the IEEE 1999 Custom Integrated Circuits Conference, pp. 125-128 (May 1999)								eraging," /lay 16 - 19,		
	AS	<u>5</u>	Radke, R. et al., "A 14-Bit Current-Mode ΣΔ DAC Based Upon Rotated Data Weighted Averagin IEEE Journal of Solid-State Circuits 35:8:1074-1084 (August 2000)									
	АТ	<u>5</u>	Modulator	s," IEEE Transa ons on Circuits a	action	Preventing Tonal Behavions on Circuits and Systems ystems - II: Analog and D	is- II: Analoc	a and	Digital Signal	Processina.		
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	AR	<u>6</u>	Converter	et al., "Simplified rs," <i>IEEE Trans</i> l4-1027 (Nover	d Logic for First-Order and factions on Circuits and Sy nber 2001)	Second-Order M stems-II: Analog	ismatch-Shaping I and Digital Signal	Digital-to-Analog Processing		
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